CITY OF ALBUQUERQUE

April 25, 2011

Darren Sowell, R.A.
Darren Sowell Architects
4700 Lincoln Rd. NE, Suite 111
Albuquerque, NM 87109

Re: HME Specialists, 5101 McLeod Rd NE, Traffic Circulation Layout
Architect's Stamp undated (E16-D020)

Dear Mr Sowell,

Based upon the information provided in your submittal received 04-13-11, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. A five-foot keyway is required for deadend parking aisles.
2. Remove the parking stall proposed directly behind the gate.
3. A six-foot wide, ADA accessible, pedestrian pathway is required from the public sidewalk to the building. This pathway cannot be located within the vehicular way.
4. Provide additional information regarding the eastern curb cut. A 24-foot wide drivepad is shown within the curb cut, but additional width is also shown. Why would this curb cut be expanded? Please clarify.
5. Clarify existing versus proposed conditions.
6. Please list the width and length for all parking spaces.
7. The emergency access lane cannot cross over the sidewalk.
8. What is the purpose of the western curb cut?
9. Please show the location of the nearest driveway on the adjacent lot.
10. The traffic circulation layout must be stamped, signed, and dated by an engineer or architect licensed in the state of New Mexico.

If you have any questions, you can contact me at 924-3991.

Sincerely,

Kristal D. Metro, P.E.
Traffic Engineer, Planning Dept.
Development and Building Services

C: File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DSA
Darren Sowell
ARCHITECTS, LLC

Angela Grapsas, Director

E-mail angelab@dsaabq.com www.dsaabq.com
Office (505) 342-6200 *Cell* (505) 999-8016 *Fax* (505) 342-6201
4700 Lincoln Rd. NE, Suite # 111 Albuquerque, NM 87109

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(Rev. 1-28-03)

E16/D020

PROJECT TITLE: **HME Specialists, Tenant Improvement**
ZONE MAP/DRG. FILE #: **Zone Map F-17-Z**
DRB#: **N/A**
WORK ORDER#: **N/A**
LEGAL DESCRIPTION: **TR A-2-2 SANBUSCO ADD COMPRISING PORTION OF REPLATTED TR A-2 OF REPL TR A**

CITY ADDRESS: **5101 McLeod Road NE, Albuquerque, New Mexico**
ENGINEERING FIRM: **N/A** CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____
OWNER: **Headstart Enterprises** CONTACT: **Jim Guthrie**
ADDRESS: **600 Montano Road NE**
PHONE: 505-
CITY, STATE: **Albuquerque, New Mexico** ZIP CODE: **87107**
ARCHITECT: **DSA Architects, LLC.** CONTACT: **Angela M. Grapsas**
ADDRESS: **4700 Lincoln Road NE** PHONE: **Office (505) 342-6200 or Cell (505) 999-8016**
CITY, STATE: **Albuquerque, New Mexico** ZIP CODE: **871009**

CHECK TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL,
REQUIRES TCL or equal
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL GRADING AND DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION (HYDROLOGY)
_____ CLOMR/LOMR
✓ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ ENGINEERS CERTIFICATION (TCL)
_____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
_____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM.)
_____ CERTIFICATE OF OCCUPANCY (TEMP.)
_____ GRADING PERMIT APPROVAL
✓ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

_____ YES
_____ NO
_____ COPY PROVIDED

DATE SUBMITTED: 4/13/2011 BY: Angela Grapsas

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal.

Call once received

RECEIVED
APR 13 2011
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

April 20, 2010

J. Arthur Blessen, P.E.
J. Arthur Blessen Engineering
11930 Menaul Blvd NE, Suite 109
Albuquerque, NM 87112

Re: HME Specialists, 611 Osuna Rd NE, Drainage Report and Site Grading Plan Engineer's Stamp date 3-16-10 (E16/D020)

Dear Mr. Blessen,

Based upon the information provided in your submittal received 4-20-10, the above referenced plan is approved to drain into Osuna Road.

The business owner, Mason Wells, agreed to cover the existing concrete rundown to bring it into compliance with COA STD DWG 2236.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: file
Don Briggs, Grading and Drainage Engineer, BernCo Public Works

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

CITY OF ALBUQUERQUE

November 22, 2005
John Arthur Blessen, PE
Claudio Vigil Architects
1801 Rio Grande Blvd NW
Albuquerque, NM 87104

Re: HME Specialists Office & Warehouse, 611 Osuna Rd. NW
Grading and Drainage Plan
Engineer's Stamp dated 11-11-05 (E16-D20)

Dear Mr. Blessen,

Based upon the information provided in your submittal received 11-14-05, the above referenced site is approved for an SO19 Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit is required for construction within City R/W. A copy of this approval letter must be on hand when applying for this permit.

If you have any questions, you can contact me at 924-3695

Sincerely,

Rudy E. Rael Associate Engineer
Planning Department.
Development and Building Services

C: Liz Sanchez, Excavation and Barricading
File

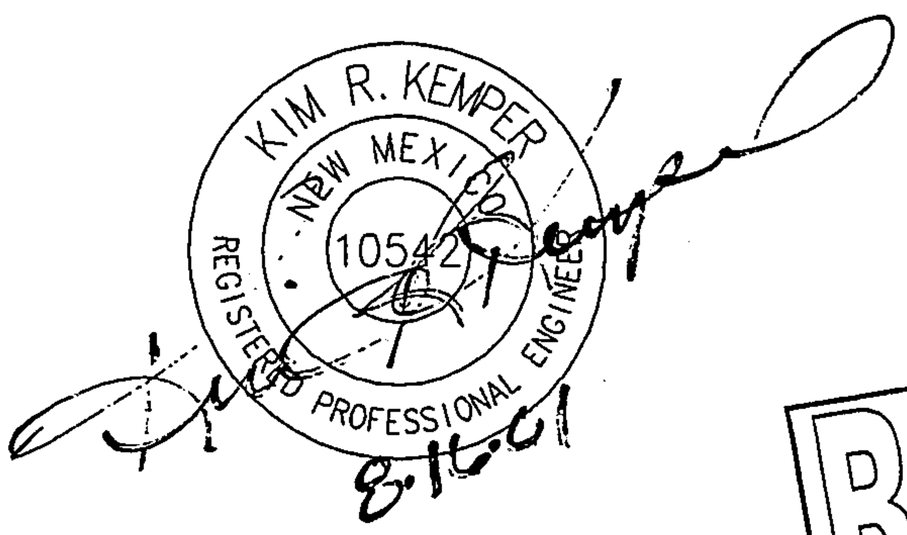
P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

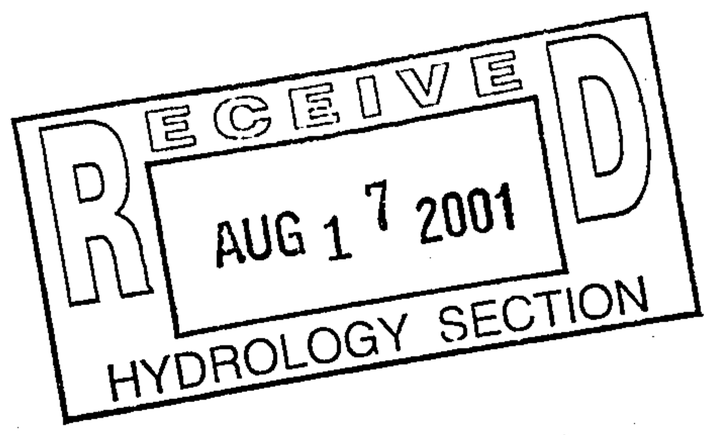
GRADING AND DRAINAGE REPORT

for

HUGHES AND REYNOLDS
SITE DEVELOPMENT
Lot 13-A Osuna Road NE

Albuquerque, New Mexico
August 2001





Prepared By:

HUITT-ZOLLARS, INC.
333 RIO RANCHO DRIVE NE, SUITE 101, RIO RANCHO, NEW MEXICO
(505) 892-5141

DRAINAGE REPORT
for
SITE DEVELOPMENT AT LOT 13-A OSUNA ROAD NE.

PROJECT LOCATION

The proposed development is west of Vista Del Norte Drive on Osuna Road. The development is immediately north of the Academy for Boys (Sandia Prep).

LEGAL DESCRIPTION

A tract of land is within Bernalillo County, New Mexico, Lot 13-A of the Huntzingers Addition.

ZONING AND SURRONDING DEVELOPMENT

The site, along with the surrounding lots to the west, is zoned C-1.

FLOOD HAZARD ZONES

The site is neither in nor adjacent to a flood hazard zone area.

METHODOLOGY

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual (DPM) of the City of Albuquerque, July 1997. Per Brian Kent's (Bernalillo County Public Works Department) discussion with Kelly Parker and the review of the Osuna Road Drainage Plan, this site has allowable sheet flow onto Osuna Road. Our proposed site is in Basin 7A of the Osuna Road Drainage Plan. The Proposed Drainage Conditions section of the report states, "...Basin 7A will sheet flow into the westbound lanes of the roadway", thus allowing direct discharge to Osuna Road. (See excerpts in **Appendix A12-A14**)

EXISTING ON-SITE CONDITIONS AND DRAINAGE PATTERNS

The site is currently undeveloped. The site sheet flows from the northeast corner of the property to the southwest across native ground. The existing site runoff discharges directly to Osuna Road.

EXISTING OFF-SITE CONDITIONS AND DRAINAGE PATTERNS

On July 25, 2001, a site visit was conducted to analyze off-site drainage conditions. The lots along the west side of the property line flow southwest away from the proposed site. There are two lots to the north of the site. The northwest lot flows north to an existing paved road. The northeast lot has nuisance flow that discharges toward the proposed site. The southeast lot that abuts Osuna has some nuisance flow that discharges toward the southeast corner of the proposed site. These flows are minor

and will be picked up by the proposed swale on the east side of the site. The other lots adjacent to the east side of the site, just north of the southern lot, will not impede the proposed site. They flow south to an existing opening in a block wall. Flow arrows are provided on the Basin Map to indicate the direction of flow of the small areas of the adjacent lots.

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERNS

The developed site will consist of three buildings, 109 space parking lot and landscaped medians. Basin 102 will discharge into a swale that runs along the west property line and discharges along with Basin through a 12" curb cut, down a rundown and through a sidewalk culvert at the southwest corner of the site to Osuna Road. Basin 103 will discharge into a swale that runs along the east property line and discharges through a 12" curb cut, down a rundown and through a sidewalk culvert at the southeast corner of the site to Osuna Road. Basin 101 discharges through the driveway at the south end of the site. Off-site runoff does not contribute the developed runoff of this site.

LAND TREATMENTS

Land treatments were obtained by calculating the actual percent of impervious areas on site. The impervious area on this site is 84%. The remaining landscaped area was split between land treatments B and C. Therefore, land treatment B = 8% and land treatment C = 8%. Historic land treatments were assumed to be 100% A.

HYDROLOGY

Storm runoff was computed using AHYMO, and the output files are included in the appendix of this report. Storm runoff will discharge directly to Osuna Road. The runoff will then travel to Edith Blvd. to a series of drop inlets. The inlets will then transport the runoff to a detention pond off the Gallegos Lateral.

AHYMO Model – Ultimate Developed Conditions
AHYMO Summary Output File – 100 Year Storm

```
(s16.67h8.5v0T &l8D
 AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -          - VERSION: 1997.02c     RUN DATE (MON/DAY/YR) =07/25/2001
 INPUT FILE = G:\Proj\17028301\drain\DURABI~1.DAT                  USER NO.= AHYMO-I-9702a0100015O-SH

                FROM TO          PEAK      RUNOFF        TIME TO  CFS    PAGE =  1
          HYDROGRAPH ID ID       AREA   DISCHARGE    VOLUME   RUNOFF   PEAK   PER
COMMAND    IDENTIFICATION  NO. NO.   (SQ MI)   (CFS)     (AC-FT)  (INCHES) (HOURS)  ACRE   NOTATION

 *S DURABILT
 *S FN DURABILT-100.DAT  7/09/01
 *S Compute 100-Year Flow
 *S Use 24 Hour Storm
 START                                                  TIME=     .00
 LOCATION              ALBUQUERQUE
 RAINFALL  TYPE= 2                                        RAIN24=  2.850
 *S*************************************************************************
 *S HISTORIC - TOTAL SITE----------------------------------------
 COMPUTE NM HYD      100.10  -   1      .00351      3.72      .107     .57344   1.500   1.655 PER IMP=   .00
 *S*************************************************************************
 *S DEVELOPED BASIN 101 - ----------------------------------------
 COMPUTE NM HYD      101.10  -   1      .00239      6.77      .300     2.35273   1.500   4.427 PER IMP=  84.00
 *S*************************************************************************
 *S DEVELOPED BASIN 102 ----------------------------------------
 COMPUTE NM HYD      102.10  -   2      .00056      1.60      .070     2.35274   1.500   4.468 PER IMP=  84.00
 *S*************************************************************************
 *S ADD BASIN 101 AND BASIN 102
 *S
 ADD HYD             SUM.1  2& 1  3     .00295      8.37      .370     2.35254   1.500   4.434
 *S----------------------------------------
 *S*************************************************************************
 *S DEVELOPED BASIN 103 ----------------------------------------
 COMPUTE NM HYD      103.10  -   4      .00056      1.60      .070     2.35274   1.500   4.468 PER IMP=  84.00
 *S*************************************************************************
 *S ADD BASINS 101 & 102 TO BASIN 103
 *S
 ADD HYD             SUM.1  4& 3  5     .00351      9.97      .440     2.35251   1.500   4.440
 *S----------------------------------------
 *S*************************************************************************
 FINISH
(s0p10h4099T &16D
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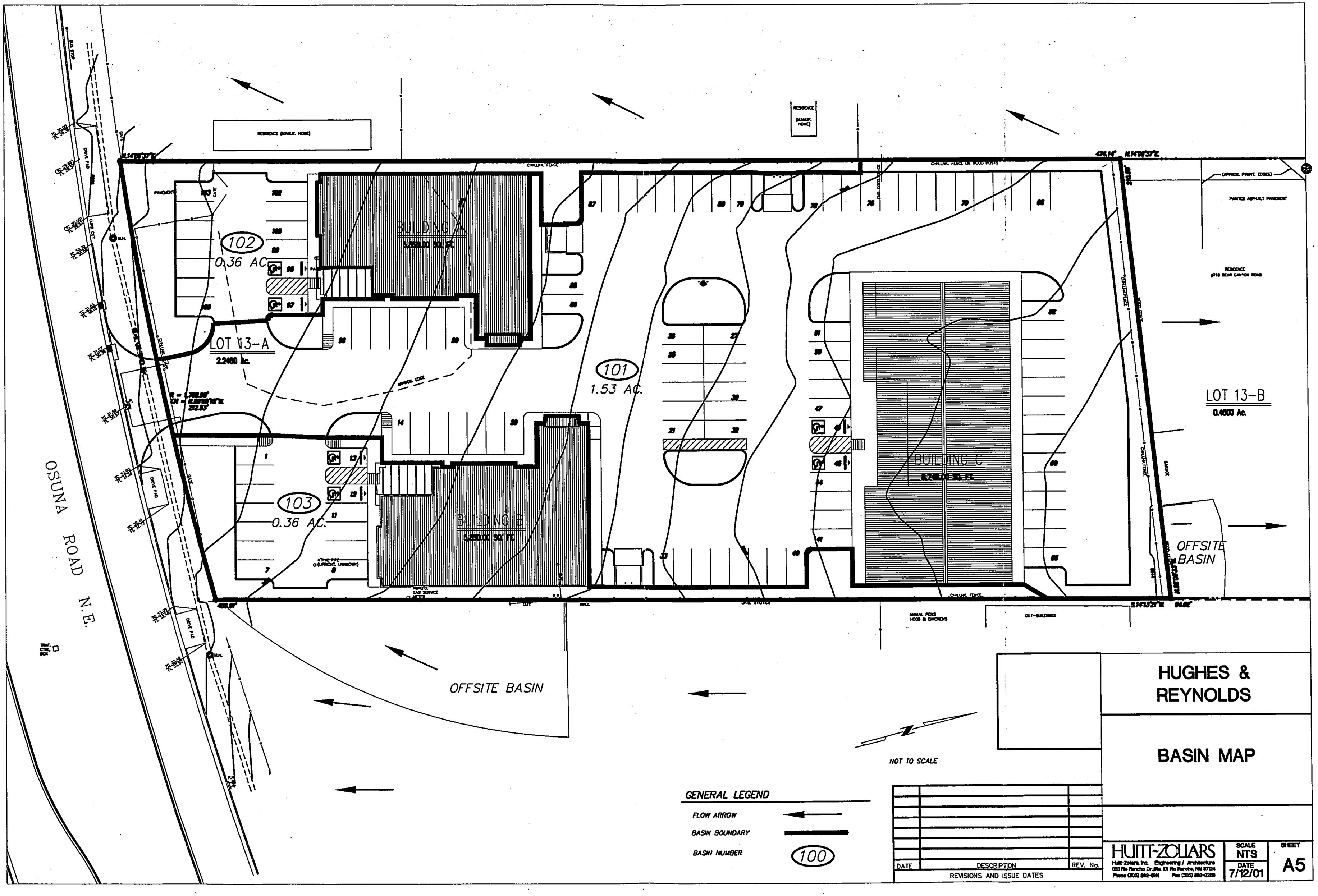

RESIDENCE (MANUF. HOME)
RESIDENCE (MANUF. HOME)
CHAINLINK FENCE
CHAINLINK FENCE ON WOOD POSTS
(APPROX. PRIVT. CODES)
PAVED ASPHALT PAVEMENT
RESIDENCE 5710 BEAR CANYON ROAD
BUILDING A 5,850.00 SQ. FT.
102
0.36 AC.
LOT 13-A
2.2480 Ac.
101
1.53 AC.
BUILDING C
LOT 13-B
0.4500 Ac.
BUILDING B
5,850.00 SQ. FT.
103
0.36 AC.
OFFSITE BASIN
OFFSITE BASIN
OSUNA ROAD N.E.
ANIMAL PENS HOGS & CHICKENS
OUT-BUILDINGS
NOT TO SCALE
GENERAL LEGEND
FLOW ARROW
BASIN BOUNDARY
BASIN NUMBER
100
DATE
DESCRIPTION
REV. No.
REVISIONS AND ISSUE DATES
HUGHES & REYNOLDS
BASIN MAP
HUITT-ZOLLARS
Huitt-Zollars, Inc. Engineering / Architecture
333 Rio Rancho Dr.,Ste. 101 Rio Rancho, NM 87124
Phone (505) 892-5141 Fax (505) 892-0259
SCALE NTS
DATE 7/12/01
SHEET A5

West v-swale
Worksheet for Triangular Channel

Project Description	
Project File	untitled.fm2
Worksheet	v-swale
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.010000	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Discharge	1.60	cfs

Results		
Depth	0.52	ft
Flow Area	0.82	ft^2
Wetted Perimeter	3.30	ft
Top Width	3.13	ft
Critical Depth	0.45	ft
Critical Slope	0.023197	ft/ft
Velocity	1.95	ft/s
Velocity Head	0.06	ft
Specific Energy	0.58	ft
Froude Number	0.67	
Flow is subcritical.		

East v-swale
Worksheet for Triangular Channel

Project Description	
Project File	untitled.fm2
Worksheet	v-swale
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.016100	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Discharge	1.60	cfs

Results		
Depth	0.48	ft
Flow Area	0.68	ft²
Wetted Perimeter	3.02	ft
Top Width	2.87	ft
Critical Depth	0.45	ft
Critical Slope	0.023197	ft/ft
Velocity	2.34	ft/s
Velocity Head	0.08	ft
Specific Energy	0.56	ft
Froude Number	0.84	
Flow is subcritical.		

East 12" rundown
Worksheet for Rectangular Channel

Project Description	
Project File	untitled.fm2
Worksheet	12" rundown
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.057900	ft/ft
Bottom Width	1.00	ft
Discharge	1.60	cfs

Results		
Depth	0.21	ft
Flow Area	0.21	ft^2
Wetted Perimeter	1.42	ft
Top Width	1.00	ft
Critical Depth	0.43	ft
Critical Slope	0.007464	ft/ft
Velocity	7.67	ft/s
Velocity Head	0.91	ft
Specific Energy	1.12	ft
Froude Number	2.96	
Flow is supercritical.		

West 12" rundown
Worksheet for Rectangular Channel

Project Description	
Project File	untitled.fm2
Worksheet	12" rundown
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.063400	ft/ft
Bottom Width	1.00	ft
Discharge	1.60	cfs

Results		
Depth	0.20	ft
Flow Area	0.20	ft^2
Wetted Perimeter	1.40	ft
Top Width	1.00	ft
Critical Depth	0.43	ft
Critical Slope	0.007464	ft/ft
Velocity	7.91	ft/s
Velocity Head	0.97	ft
Specific Energy	1.17	ft
Froude Number	3.10	
Flow is supercritical.		

IV. Proposed Drainage Conditions

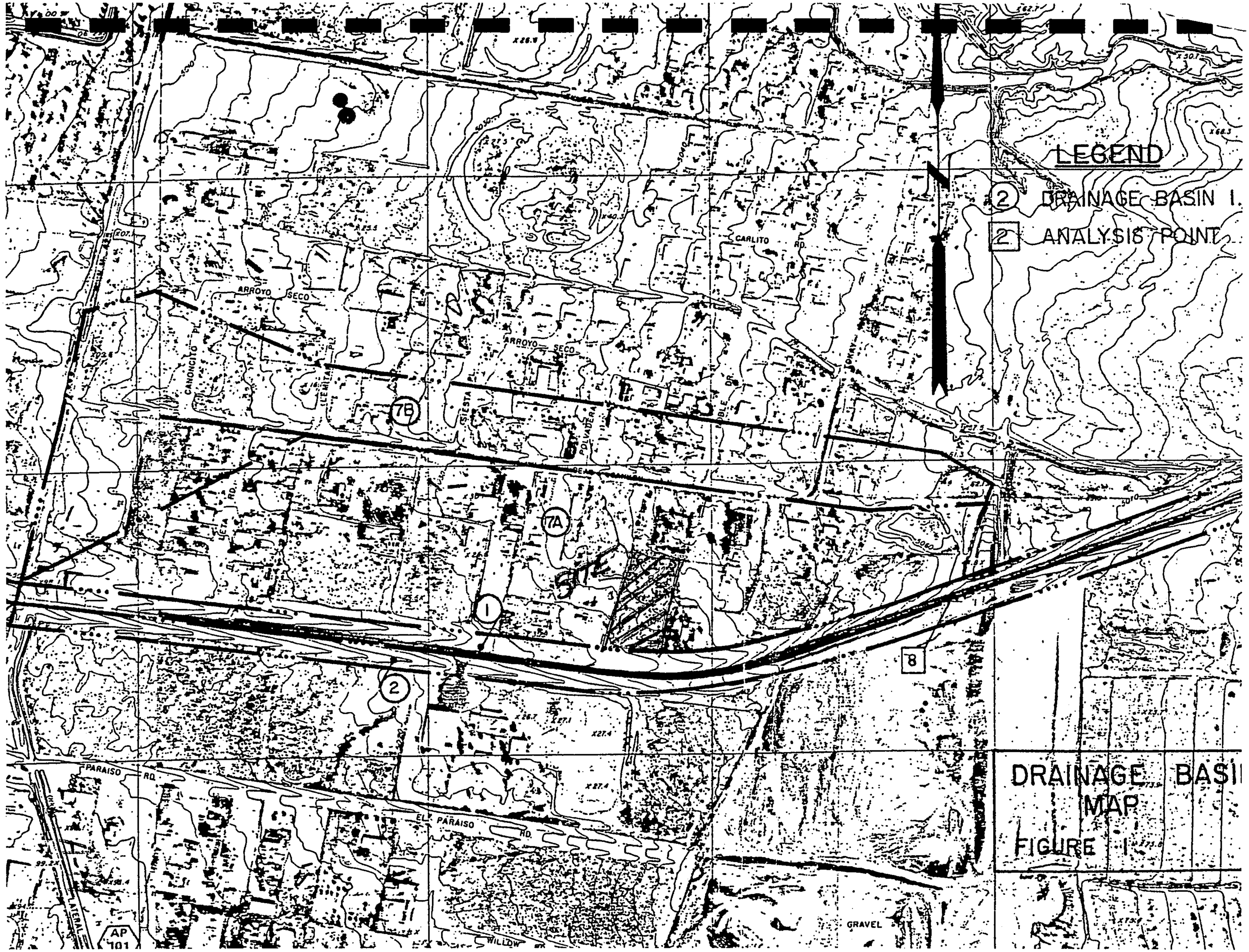
Due to the widening of Osuna Road east of the North Diversion Channel and the construction of a new bridge for westbound traffic, the existing asphalt rundown will require removal. Due to the ineffectiveness of the existing battery of storm inlets located east of the rundown (see calculations page 24), a new system of storm inlets will be installed. This new system will assist in draining the 100 year, 6 hour storm from the roadway upstream of the new bridge.

Basins 1-4 make up the Osuna R.O.W. between the North Diversion channel and the AT&SF Railroad. Storm water within the roadway will be intercepted by a storm drain system with storm inlets located to adhere to the local drainage ordinance which requires that one free driving lane be available during a 10 year, 6 hour storm event. The mainline will be designed to carry the 10 year, 6 hour runoff based on existing conditions per suggestion by the NMSHTD. The calculations (see appendix) demonstrate the effectiveness of the storm inlet location design. In addition to the street flows, offsite basins from the north will be allowed to discharge into the system. As shown by Figure 1, Basin 7A will sheet flow into the westbound lanes of the roadway. Additional storm inlets will be provided in the westbound lanes to drain this sheet flow. Basin 7B drains westward to Edith Boulevard. In anticipation of future Edith Road improvements a battery of storm inlets will be provided at the north curb returns of the intersection. The storm drainage system will drain to a detention pond located within the center median just east of the railroad crossing. Due to limited downstream capacity at the Alameda Drain, controlled discharge has been imposed on this project. Controlled discharge requires storage of stormwater within the center median on either side of the railroad crossing. The upstream pond (pond #2) is the outfall for basins 1-4 and 7-9. The roadway and basin 7 drain as previously discussed. Basins 8 and 9 drain by 18 inch storm drains from double Type 'D' storm inlets. These inlets are located at sag points near the approaches to Osuna Road. Pond No. 2 drains at a controlled rate of 27.5 cfs to Pond No. 1 by a 48 inch storm drain. Pond No. 1 accepts runoff from the remainder of the roadway and basin 10. Basin 10 is drained by a 18 inch storm drain from an existing double Type 'D' inlet which presently drains as a sump. Pond No. 1 drains at a controlled rate of 15 cfs into the existing 48 inch storm drain provided by the Second Street improvement project.

It must be noted that the storm inlets provided to basins 8,9 and 10 are intended to drain nusiance flows that are presently causing ponding at the approaches to Osuna Road. Due to the topography of each basin, complete drainage of the 10 year, 6 hour storm generated by each basin is not possible. These inlets will, however, provide some relief even though some temporary ponding may still be experienced.

The storm drainage system, which has been alluded to in the previous discussion, will flow to the Alameda Drain under controlled discharge conditions. The discharge conditions for the Osuna Road Improvements project was determined by the Middle Rio Grande Conservancy District and in a study of the Alameda Drain by Boyle Engineering. The rate of discharge will be 15 cfs, with a storage requirement of approximately 93,500 cubic feet. The outfall at the drain will be metered into the Drain with an appropriate concrete outlet structure.

Some portions of the properties located south, but adjacent to the roadway, could potentially drain into the roadway. This analysis and design assume no discharge into the roadway or associated storm drainage facilities by these properties. Generally, the topography falls to the south and west making this restriction compatable with existing and future drainage patterns. Should a development require release of stormwater into the Osuna Road improvements, it is recommended that controlled discharge be required at a rate to be established by further analysis.



DRAINAGE BASIN MAP

FIGURE 1

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 24, 2001

Kim Kemper, P.E.
Huitt-Zollors, Inc.
One Park Square, Suite550
6501 Americas Parkway NE
Albuquerque, NM 87110-5372

Attn: Russell Grayson, P.E.

RE: ***HUGHES AND REYNOLDS, LOT 13-A OSUNA ROAD NE (E16-D20). Revised DRAINAGE REPORT AND GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT AND SO#19 PERMIT APPROVALS. ENGINEER'S STAMP DATED AUGUST 16, 2001.***

Dear Mr. Kemper:

Based on the information provided on your August 17, 2001 resubmittal, the above referenced project is approved for Building Permit and SO#19 Permit..

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit is required for construction within the City right-of-way, A copy of this approval letter must be on hand when applying for the excavation permit.

***Please furnish a second copy of the G & D Plan for the SO#19 process. Note that only the Inspector's Signature is now required.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Pam Lujan
Terri Martin
File

City of Albuquerque
Development Review Board
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

TO BE PUBLISHED IN THE ALBUQUERQUE JOURNAL MONDAY, JULY 16, 2001

July 27, 2001

Kim R. Kemper, P.E.
Huitt-Zollars, Inc.
333 Rio Rancho Blvd., Suite 101
Albuquerque, NM 87124

RE: HUGHES AND REYNOLDS, LOT 13-A OSUNA ROAD NE (E16-D20). DRAINAGE REPORT AND GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED JULY 12, 2001.

Dear Mr. Kemper:

Based on the information provided on your July 13, 2001 submittal, the above referenced project is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Terri Martin
File

E16/D020

Drainage Report

for

HME Specialist

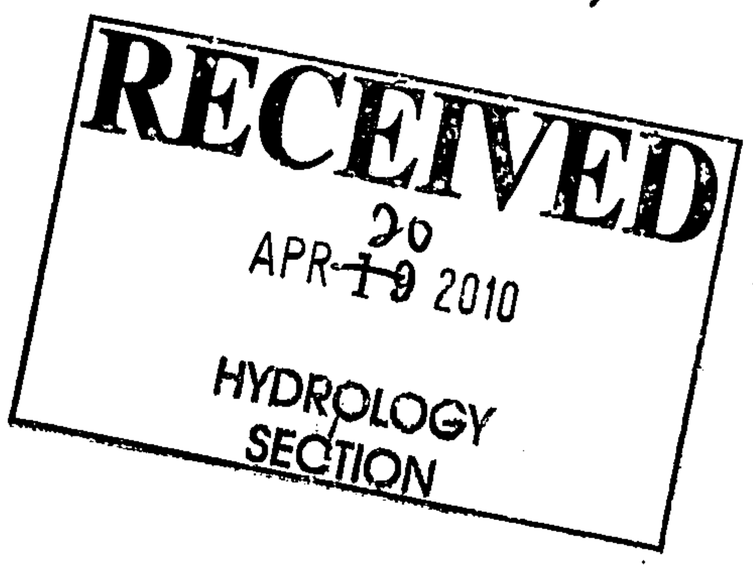
611 Osuna Rd
Albuquerque, New Mexico

March 16, 2010

by

J Arthur Blessen Engineering

Approve drainage to city streets / pond



Location:
Lot 13-A block 1 Fruitale Subdivision, Bernalillo County New Mexico
611 Osuna Road.

Zone map E-16-Z
Located North side of Osuna Road west of Vista Del Norte.

Site Area: 2.25 Acres

Precipitation Zone 2

Flood Zone:
The proposed building locations on the site do not lie within a flood hazard zone (Panel 35001C00138D). The lands to the east and west slope to the south, the lands to the north slope away from the site, and the street to the south blocks flows from that direction; therefore offsite flows are considered negligible.

Existing Conditions:
The existing site is developed. The previous development included the office/warehouse, asphalt parking lot to the south and east of the building, and landscaping.

The previously approved drainage plan (COA File #E16/D020) for the site prepared by Huitt-Zollars July 2001 established unrestricted discharge of developed flows into the storm drain located in Osuna Road. The drainage plan for the current development was prepared by Claudio Vigil Architects November 2005. The approved drainage plan established a rate of discharge of 8.3 cfs (3.7 cfs/acre) to Osuna Road.

Developed Conditions:
The proposed development will consist of a two phases. Phase 1 consist of the parking area and associated landscaping on the north end of the property. Phase 2 consist of a 4100 sf office addition. The proposed development will increase the rate and volume of runoff. The additional runoff will be directed to the drive entrance at the southeast corner of the site. The proposed rate of discharge is 9.5 cfs (4.3 cfs/acre).

The calculation analyze the existing and proposed conditions for the 6-hour 100 year rainfall event. The analysis is in accordance with the City of Albuquerque Development Process Manual Volume II.

Drainage Calculation

City of Albuquerque DPM 1997 edition

HME Specialist, 611 Osuna Rd

Precipitation Zone 2

Basin Area = 2.248 acres

Existing Treatment			Improved Conditions Treatment		
Area of A =	0 sf	0%	Area of A =	sf	0%
Area of B =	23500 sf	24%	Area of B =	18736 sf	19%
Area of C =	28396 sf	29%	Area of C =	0 sf	0%
Area of D =	46021 sf	47%	Area of D =	79181 sf	81%

Excess Precipitation, E (inches) 6 hr - 100 yr storm table A-8

Existing Conditions Treatment	% of Area			En	Improved Conditions Treatment	% of Area			En
A	0.00	x	0.53 =	0.00	A	0.00	x	0.53 =	0.00
B	0.24	x	0.78 =	0.19	B	0.19	x	0.78 =	0.15
C	0.29	x	1.13 =	0.33	C	0.00	x	1.13 =	0.00
D	0.47	x	2.12 =	1.00	D	0.81	x	2.12 =	1.71
			E =	1.51				E =	1.86

Volume V = E A / 12

Ve =	1.511	x	2.2479 /	12 =	0.283	acre ft	12332	cf
Vi =	1.864	x	2.2479 /	12 =	0.349	acre ft	15206	cf

Discharge Rate, Q (cfs / acre) 100 yr storm table A-9

Treatment	% of Area			Q	Treatment	% of Area			Q
A	0.00	x	1.56 =	0.00	A	0.00	x	1.56 =	0.00
B	0.24	x	2.28 =	0.55	B	0.19	x	2.28 =	0.44
C	0.29	x	3.14 =	0.91	C	0.00	x	3.14 =	0.00
D	0.47	x	4.7 =	2.21	D	0.81	x	4.7 =	3.80
			q =	3.67				q =	4.24

Peak Rate Qp = q A

Qp(e) =	3.67	x	2.2479 =	8.24	cfs
Qp(i) =	4.24	x	2.2479 =	9.52	cfs

Excess Volume = 0.066 acre ft

Excess Rate = 1.28 cfs

tc =	0.2 hr		
tb =	(2.107 *E*At/Qp)-(0.25*Ad/At) =	0.725	hr
tp =	(0.7*tc)+((1.6-(Ad/At))/12) =	0.206	hr

Discharge Rate	9.52 cfs	4.24 cfs/ac
Volume	15888 cf	
Discharged -	15888 cf	
Pond Voulme	**0** cf	

Drainage Calculation

City of Albuquerque DPM 1997 edition

HME Specialist, 611 Osuna Rd

Precipitation Zone 2

Basin Area = 2.248 acres

~~Existing~~ UNDEVELOPED

Treatment

Area of A =	97917	sf	100%
Area of B =	0	sf	0%
Area of C =	0	sf	0%
Area of D =	0	sf	0%

Improved Conditions

Treatment

Area of A =		sf	0%
Area of B =	18736	sf	19%
Area of C =	0	sf	0%
Area of D =	79181	sf	81%

Excess Precipitation, E (inches) 6 hr - 100 yr storm table A-8

~~Existing Conditions~~ UNDEVELOPED

Treatment	% of Area			En
A	1.00	x	0.53 =	0.53
B	0.00	x	0.78 =	0.00
C	0.00	x	1.13 =	0.00
D	0.00	x	2.12 =	0.00
			E =	0.53

Improved Conditions

Treatment	% of Area			En
A	0.00	x	0.53 =	0.00
B	0.19	x	0.78 =	0.15
C	0.00	x	1.13 =	0.00
D	0.81	x	2.12 =	1.71
			E =	1.86

Volume V = E A / 12

Ve =	0.530	x	2.2479 /	12 =	0.099	acre ft	4325 cf
Vi =	1.864	x	2.2479 /	12 =	0.349	acre ft	15206 cf

Discharge Rate, Q (cfs / acre) 100 yr storm table A-9

Treatment	% of Area			Q
A	1.00	x	1.56 =	1.56
B	0.00	x	2.28 =	0.00
C	0.00	x	3.14 =	0.00
D	0.00	x	4.7 =	0.00
			q =	1.56

Treatment	% of Area			Q
A	0.00	x	1.56 =	0.00
B	0.19	x	2.28 =	0.44
C	0.00	x	3.14 =	0.00
D	0.81	x	4.7 =	3.80
			q =	4.24

Peak Rate Qp = q A

Qp(e) =	1.56	x	2.2479 =	3.51 cfs
Qp(i) =	4.24	x	2.2479 =	9.52 cfs

Excess Volume = 0.250 acre ft

Excess Rate = 6.02 cfs

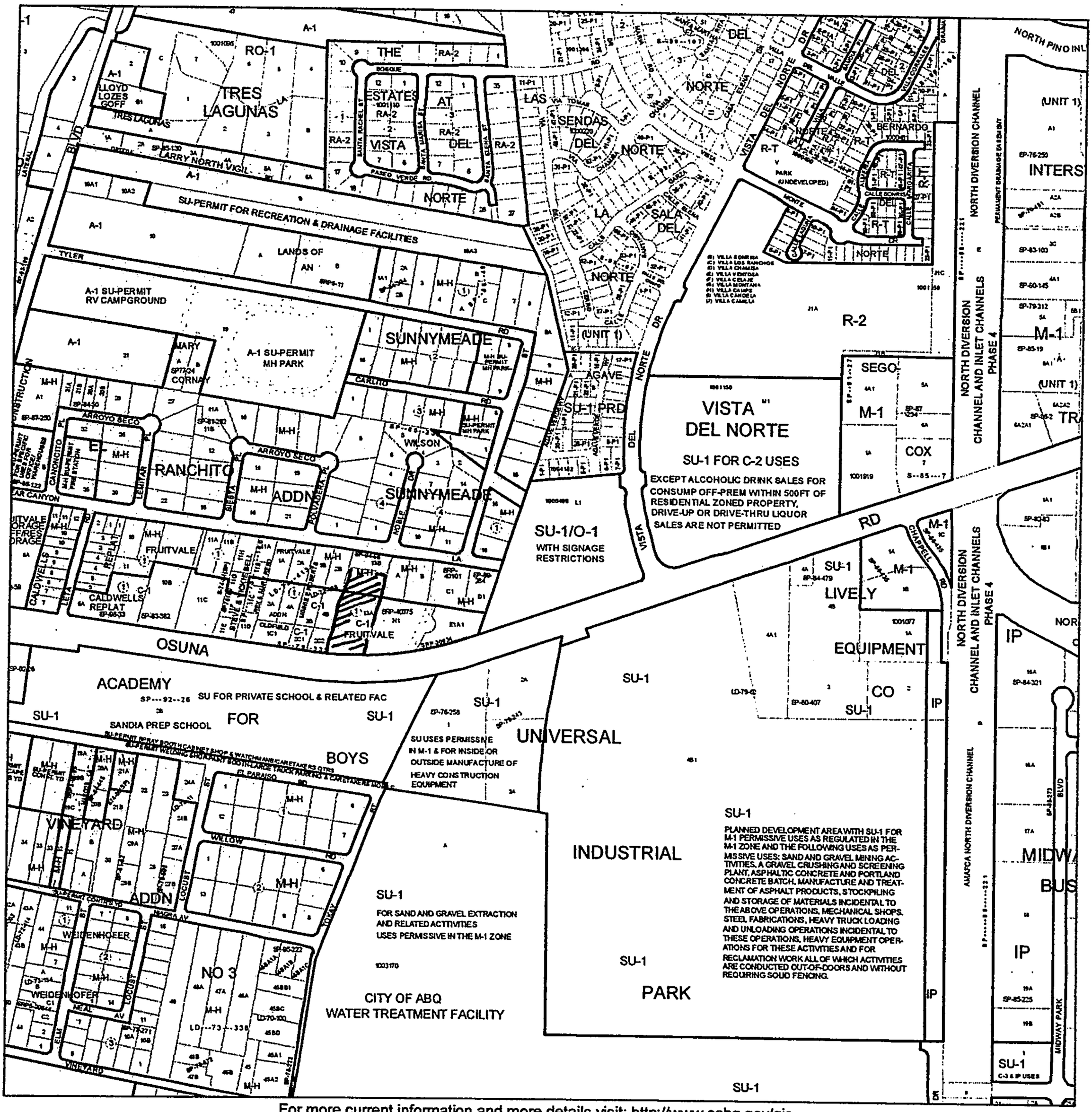
tc =	0.2	hr	
tb =	(2.107 *E*At/Qp)-(0.25*Ad/At) =		0.725 hr
tp =	(0.7*tc)+((1.6-(Ad/At))/12)	=	0.206 hr

Discharge Rate 9.52 cfs 4.24 cfs/ac

Volume 15888 cf

Discharged - 15888 cf

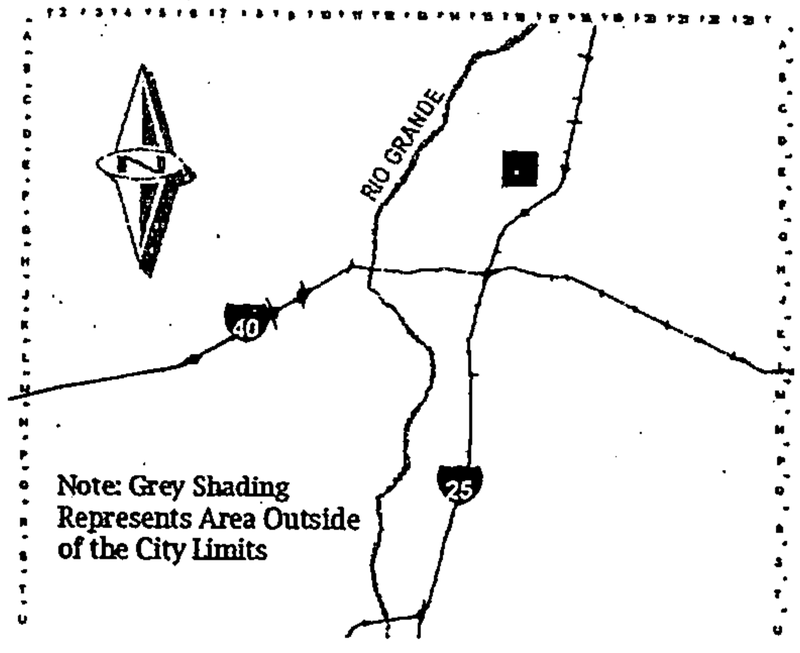
Pond Voulme **0** cf



For more current information and more details visit: http://www.cabq.gov/gis

AGIS
Albuquerque Geographic Information System

Map amended through: 1/12/2006



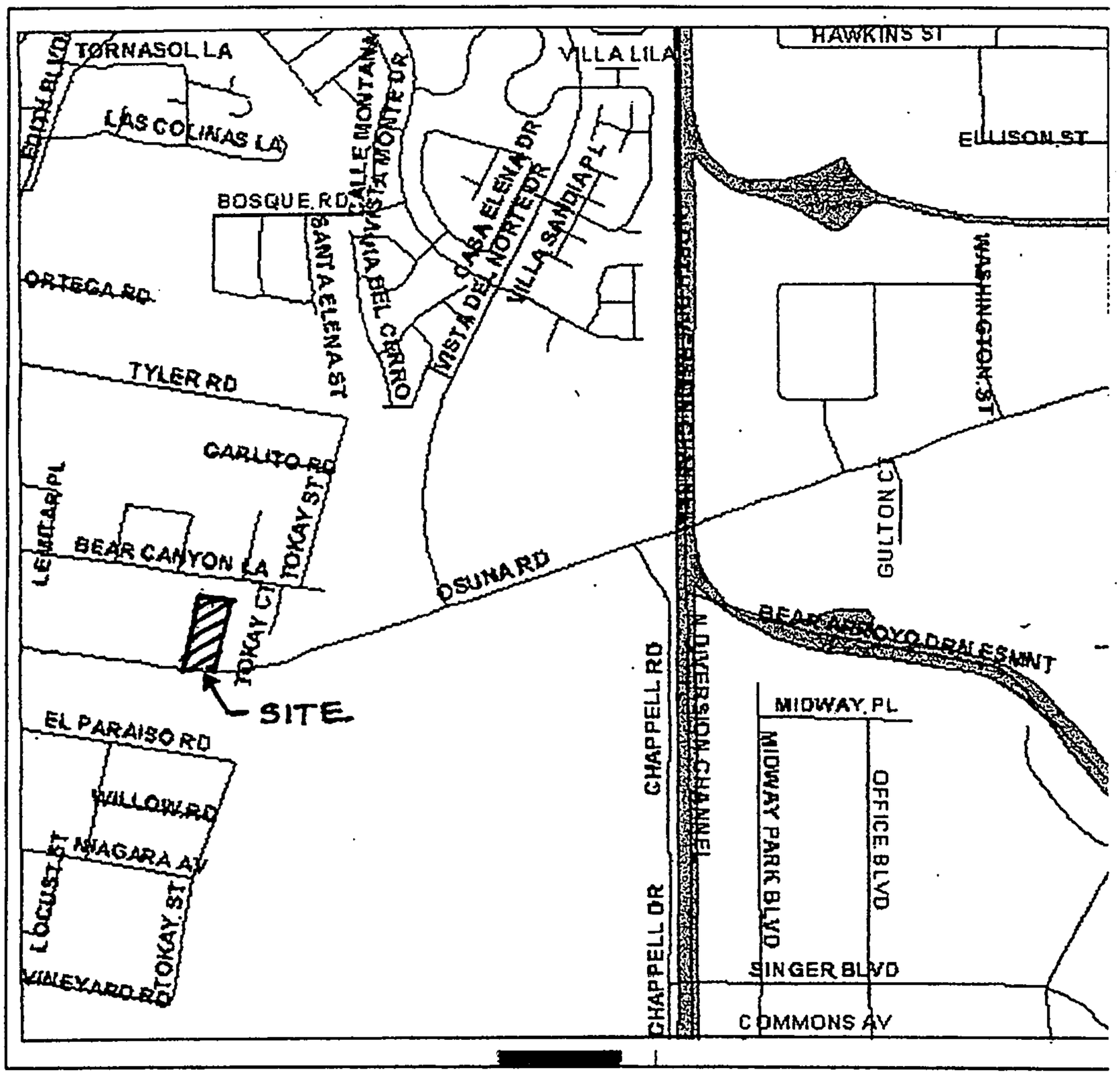
Zone Atlas Page:

E-16-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet



FLOOD PLAIN MAP – FROM FIRM PANEL 138 OF 825 MAP NUMBER 35001C0138 D